

a quantity of iron present in some instances to combine with all the nascent sulphur. It is supposed by Liebig that the pyrites and zinc blende of coal owe their origin to the changes we have been considering.

I am glad that your letter has induced me to consider the negative of my proposition, that sulphuretted hydrogen exists in stagnant waters, because, the foregoing remarks may assist in pointing out the cause of the healthiness of some marshy lands, and also turn the attention of physicians to a means of remedying the production of sulphuretted hydrogen, in the streets of cities, &c., by freely distributing powdered iron ore as a preventive. Should it answer, the smallness of the expense, and the absence of smell, would constitute it a desirable substitute for the chloride of lime. The hæmatite ores would probably succeed best, but experiment alone can decide this question; and should opportunity serve, I shall examine the subject at an early period.

Whether the neighbourhood of Boston owes its exemption to the presence of a metal in the soil, or not, is worthy of investigation. But the quantity of water, the ingress of tides, winds, and other causes may in this instance destroy the malaria if formed. Amongst the localities enumerated, in which the influence of sea water is apparent, I beg to add that of Sheerness, England, the salt marshes of which are exceedingly insalubrious.

Allow me to remain, with the highest respect, yours truly,

D. P. GARDNER.

Prince Edward C. II., Dec. 5th, 1842.

ART. III.—*Excision of the Olecranon Process for Anchylosis of the Elbow-joint*. By GURDON BUCK, Jr., M.D., one of the Surgeons of the New York Hospital.

JOHN M'CORMICK, an ostler, of robust constitution, born in Ireland, aged 28 years, was admitted into the New York Hospital, September 27th, 1842, with anchylosis of the right elbow-joint, from an injury received more than a year before, in falling through a trap-door with great force upon the elbow. Owing to the swelling that succeeded, the nature of the injury was rendered obscure. Extensive inflammation soon followed, involving the limb above and below the joint, and going on to suppuration. At the expiration of thirteen weeks, when he was able to go about, the joint was stiff as at the time of his admission, when the limb was flexed in a position intermediate between a right angle and complete extension. No swelling or appearance of inflammation remained, and the general contour of the joint was natural, with the exception of the olecranon, which was expanded and uneven upon its surface with a bony prominence on either margin at an inch from its extremity. The head of the radius rotated with a creaking, cartilaginous

sound when the hand was pronated and supinated, which could be performed nearly to the natural degree. No flexion or extension could be effected, or if any did exist, it was so slight as to be doubtful to several who examined it. The immediate investments of the olecranon were thickened, though the skin covering it remained supple and free from adhesion. The scars of incisions made for the relief of the inflammation following the injury, were apparent over the outer condyle and olecranon; one of them situated over the latter part an inch from its extremity remained open till within six weeks of his admission, and was then scabbed over without any depression or adhesion. Pressure on the olecranon caused pain. The limb was wasted, and being of little service to the patient, he was anxious to have something done for his benefit.

During the first two weeks after his admission, attempts were made to restore the mobility of the joint by mechanical force. For this purpose an apparatus was used consisting of a half cylinder to receive the arm, and another the forearm and hand, joined at the ends by a hinge on each edge, and open behind over the elbow. The limb being secured with proper straps and pads, the motion was regulated by means of a screw, acting in the manner of the screw in Amesbury's machine for the leg. In this way great force could be applied to produce both extension and flexion. The patient complained of a good deal of pain at each application of the machine, and though the angle of the elbow seemed to be altered while in the machine, yet on taking it out no change was observable. After the last application, when the force employed exceeded that of any preceding application, a slight degree of motion was perceptible for a few days, but the violence done to the parts caused severe pain and tenderness around the olecranon, that required leeching and poultices for their relief.

After careful consideration of the case, I was led to regard the impediment to motion in the joint, as confined to the olecranon process, and dependent on adhesion of its articular surface to that of the os humeri by means of bony matter or otherwise. This process was the only part that presented any deviation from the healthy state; it was expanded, uneven and tender, and the two bony prominences on its surface, already noticed, seemed rather to confirm a suspicion that had been entertained by one of the medical gentlemen that saw him after the injury, that the olecranon had been fractured without being separated. The inflammation consequent on the injury had also been concentrated about this part, and the bone itself had evidently participated in it. The head of the radius continuing moveable, rendered it probable that the anterior portion of the joint with which it communicates, remained free of adhesions. With these views, it appeared to me that if this process were removed, it would be easy to overcome any remaining impediment by moderate force, and perhaps eventually restore the mobility of the joint, or at any rate, improve the position of the limb, so as to render it much more useful than in its present condition. Though the former result

seemed quite doubtful, the latter, I thought, could be anticipated with such a degree of certainty as would justify the experiment, and would in itself be a sufficient advantage to compensate for the risk and suffering incurred. The numerous successful operations for the excision of the entire elbow-joint under much less favourable circumstances, afforded ample precedent in favour of the safety of an operation that proposed the removal of only a small portion of the joint. Having once performed excision of this joint,* I felt the more encouraged by the experience thus acquired to attempt this new operation. With the concurrence of my colleagues, therefore, I performed the following operation on the 29th October, nearly five weeks after his admission.

Operation. The patient lying on his left side with his back towards the operator, a tourniquet was applied over the insertion of the deltoid muscle, and the limb held with its posterior surface nearly in a horizontal position. A longitudinal incision, five inches in length, was made over the middle of the olecranon, extending three inches above and two below it, penetrating to the bone; the triceps tendon was then divided at its insertion towards either edge, care being taken to avoid cutting across the aponeurosis, which is continuous from the edges of the tendon over the muscles lying on the posterior part of the forearm, and inserted into the edges of the olecranon; these insertions of the fascia as well as the origins of the muscles beneath it were dissected up from the bone to the extent of nearly two inches, which allowed the olecranon to be exposed, when the edges of the incision were drawn asunder over the condyles. Broad curved spatulæ were used for this purpose, and with the amputating saw one-half the thickness of the bone was cut through with great facility; further progress was made in the section with Hey's saw, after which the separation was easily completed with a chisel and mallet. A deep-seated bony projection remaining towards the inner condyle was also separated with the chisel. In detaching the excised process, it was evident that adhesions were broken up, and on inspecting the articular surfaces they were found deprived of their smooth bony shell as well as of their cartilages, and presented rough uneven prominences and depressions of the spongy texture corresponding to each other, and of a deep red colour. The fragment removed was nearly an inch and a half in length, and presented no appearance that confirmed the suspicion of former fracture. No pus or synovial fluid was observed. With a moderate degree of force the elbow was now bent to less than a right angle, and the hand brought to the mouth, causing, however, severe pain, of which the patient had not complained during the previous steps of the operation.

No ligature was required. Four sutures were introduced so as to leave an opening in the middle of the wound for the discharge of the fluids, and

* Reported in *New York Journal of Medicine and Surgery*, No. viii. April, 1841.

between them short strips of adhesive plaster were applied, extending only half round the limb. A compress and loose bandage completed the dressing; after which the limb was placed on a hair pillow, flexed at a little less than a right angle.

A copious oozing of bloody serum continued for forty-eight hours after the operation. The patient was comfortable, and complained of no severe pain till the afternoon of the second day, when the pulse became more accelerated, and the elbow very painful, owing in part to the want of solid support, which was supplied by placing the limb on a flat splint, with a joint opposite to the elbow, allowing it to move edgewise; the bandages that secured the limb to the splint being interrupted at the elbow so as to leave the wound accessible, after which three dozen leeches were applied, followed by poultices. R. Tart. antim. gr. j., Spirit. mindereri \mathfrak{z} vi., Cap. \mathfrak{z} ss. q. 2 hora, and Infus. sennæ comp.

Nov. 1st. The elbow is more swollen, with a moderate degree of redness and heat. Patient still complains of pain referred to the bone, though the leeching afforded relief last evening. Pulse is 120, and compressible. Temperature of the body natural. The pain increasing towards evening, two dozen leeches were applied, and again afforded relief, after which solution of sulph. morphine was given freely through the night.

2d. Was unable to sleep till toward morning, is quite free from pain; pulse is 96; temperature natural, and bowels open. There is no increase of swelling or redness; removed one of the sutures near the middle of the wound. Patient experiences great comfort since the limb was suspended last evening from the bed frame, which allows him much more freedom in moving his body as well as his limb, and facilitates the changing of the poultices. To continue the saline mixture. At evening one dozen leeches were again applied, and followed by anodynes.

3d. Has had a comfortable night, and slept considerably; is more free from pain; pulse is 92. Removed another suture. The edges of the wound remain agglutinated with an outlet in the middle, from which some purulent discharge begins to flow. At evening, six leeches were applied; after which ten grains of Dover's powder were given every three hours.

4th. Passed a good night and slept three hours consecutively; pulse is 76, and natural. The elbow looks well; removed the remaining sutures.

Subsequently an occasional application of half a dozen to a dozen leeches was necessary to relieve the pain in the bone. About the fourteenth day after the operation, the poultices were changed for simple dressings, and gentle passive motion was commenced. The suppuration was moderate, never exceeding two ounces in twenty-four hours, and was mixed with synovial fluid.

At the expiration of three weeks, patient walked about the ward with his arm in a sling, the wound being healed with the exception of an opening in the middle, from which a slight discharge continued. Efforts to re-establish

the mobility of the joint were persevered in for three weeks longer, when, owing to the severe pain attending every attempt at motion, I was obliged to desist and allow the joint to ankylose in a position most favourable for use.

When discharged, December 19th, the wound had been healed for some time, the swelling had disappeared, and the soft parts had in a great degree resumed their former suppleness; the depression left in the place of the olecranon was filling up with solid matter. Pronation and supination have not been impaired, but continued as before the operation. Patient could bring his hand to his mouth, and appeared well satisfied with the result, being persuaded that his limb would be much more useful than in its former condition. Five weeks after his discharge, patient reported himself. The arm was gradually gaining strength, the parts involved in the operation remained sound, and the depression over the olecranon was nearly obliterated by the deposition of new solid matter.

NEW YORK, January, 1843.

ART. IV.—*Electro-Magnetism in a case of Poisoning—with suggestions for its application to still-born Children, and to some forms of disease.*

By THOMAS S. PAGE, M. D., of Valparaiso.

A. T——, an Englishman, the subject of this communication, is a clerk in one of the most respectable commercial houses in Valparaiso—aged 22 years, and of robust frame. He had a slight gleet, for which he took pulverised cubebs in doses of half an ounce night and morning, and experienced from them neither good nor bad effects. On the night of the 16th of March, 1842, he went to an apothecary's shop, and asked for cubebs. Not having confidence in the lad in attendance, he requested permission to examine the label on the bottle, and read thereon *Pulv. Cubeb.* He then ordered an ounce divided into two parts. He returned home at midnight, when he immediately took one of the powders, placed himself in bed, and as was his custom took up a book to read; but as he states, he had not read two lines before he felt a dizziness and inclination to sleep. I accidentally discovered him the following morning about twelve o'clock, and found him with his face red and swollen; lips dark purple; mouth containing a viscid frothy saliva; tongue dry and chapped appearance in the centre, and the teeth are slightly coated with a brown sordes; veins of the forehead and temples turgid; eyes rolled upward, injected and their pupils contracted to a point; skin moderately warm and moist with clammy perspiration; feet cool; pulse very slow, moderately full, and dispersed by the least pressure; respiration very slow, short and gasping. By agitating him violently he was aroused for a moment, uttered some incoherent expression, and sunk